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CONCEPT-BASED LESSON PLANNING PROCESS GUIDE

Note: The shaded areas indicate the shifts from more traditional lesson planning to a concept-based instructional design and asks teachers to metacognitively reflect on their planning. The red cells and shading indicate the primary focus of our work at the Institute. **The process guide is to help make visible "the invisible thinking" in which teachers engage as they plan lessons**. The guide is not intended to suggest that templates in use by teachers or in districts should be replaced; in fact, the process guide may be a valuable tool when used "side-by-side" with other lesson planning templates or tools. The intention is to illustrate the type of questioning that should occur consistently with any planning process when considering the instructional shifts implicit in the Colorado Academic Standards.

Shift in Instructional Design	***Lesson Elements and Design***	***Metacognitive Reflection***
The Unit Generalization and Focusing Lens asks students to … ***Explain how the earth's tilt and orbit cause the seasons.*** ***Explain the relationships with regard to the earth and sun.***	**Lesson Focus:** (*Connection to Generalization and/or Focusing Lens in the District Sample Curriculum Project)* Seasons occur predictably due to the earth's tilt and orbit around the sun. (SC09-GR.4-S.3-GLE.1-EO.c; RA.3; N.1) CCSS.Math.Content.4.MD.B.4 - Make a line plot to display a data set of measurements.	*How does this specific lesson advance the big idea or generalization of the unit? What connections might be made between other content areas?* *Students begin to notice patterns in data tables comparing average temperatures in Denver and Australia. The formulate questions and explore to find more information.*
This lesson objective / learning target is critical to student understanding because…	**Objectives / Learning Targets:** *(Key knowledge & skills students will master in the lesson)* *(Language may be pulled from the task in the Learning Experience:"…so that students can…")* ***Explain how the earth's tilt and orbit cause the seasons.*** ***Explain the relationships with regard to the earth and sun.*** ***Develop models to demonstrate the relationship between sun and earth that causes seasons.***	*In what ways does the learning target support the generalization?*
Instructional strategies	**Instructional Strategy Menu (not exhaustive):** · *Student-generated questions*	*Which instructional strategies will foster*

	Essential Question- What are the reasons for the seasons? · *Teacher-provided inquiry questions* · *Think- aloud* · *Teacher modeling* · *Close reading protocol* · *Hands-on/experiential* · *Direct instruction* · *Collaborative groups* · *Socratic Seminar* · *Please add your own discipline-specific strategies*	*learning the lessons skills, processes, or content?* *Student generated questions will promote the scientific practices (Asking Questions)*
In the first 3-7 minutes of the lesson, We want to engage the students with a scenario that will give them some context that will help them analyze data and create a graph.	***Opening (hook / anticipatory set / lesson launch) ENGAGE*** Phenomenon. Our reason for being here today is to explore the phenomenon of seasons. ***Engaging Scenario Video:*** http://thekidshouldseethis.com/post/549976133241 ***In this task, you will look at climate data from Denver and Melbourne, Australia. First you will graph the data from the data with a partner or 2. After you have finished, write down some questions that you guys have looking at your graph and data.*** **Instructional Strategy chosen:** **Why is this strategy impactful:** (*In what ways does this strategy move the learner toward meeting the learning target? How would this strategy ensure all students, with differentiated needs, could feel successful?)* This activity supports "creating relevancy" by reminding students that weather is different all over the world, as well as from location to location. The graph is also a challenge for many students. **How does this strategy support meeting the "just-right challenge," or "building relationships," or "creating relevancy," or "fostering disciplinary literacy"?**	***In what ways does the chosen strategy work toward a larger purpose at the beginning of the lesson?*** *Engaging students, increasing curiosity, stimulating student-generated questions.* ***In what ways does the chosen strategy(ies) work toward a larger purpose.*** *Interacting with complex texts; situating students in real-life, relevant experiences; Stimulating student discourse)?* ***In what ways does the chosen strategy cement the learning?*** ***Adding relevancy with the scenario and creating a visual by graphing the data.*** *What evidence will show that the strategies impacted student learning? Were the*

The Learning Experience will	***EXPLORE*** ***Learning Experience / Lesson Google Classroom: tdrc8u*** **Instructional Strategy chosen: Give students time to explore answers to their questions.** **Teacher will facilitate share out of one question and one bit of information that they learned.** **EXPLAIN** **Students write explanation of why we have seasons.** **Construct a model.** **Teachers demonstrate correct model.** **Why is this strategy impactful:** (*In what ways does this strategy move the learner toward meeting the learning target? How would this strategy ensure all students, with differentiated needs, can feel successful?)* The explanation is written as a group, and encourages collaborative discussion and work. The model is constructed as a group, and also requires collaboration. Building a three dimensional model was an option by which we can address different learning modalities. **How does this strategy support meeting the "just-right challenge," or "building relationships," or "creating relevancy," or "fostering disciplinary literacy"?**	*strategies effective through the learning process?*
The closing activity reinforces the learning.	***EVALUATE: A few students share their models. Exit tickets collected in Google classrooms.*** ***Closure*** **Instructional Strategy chosen:** **Why is this strategy impactful:** (*In what ways does this strategy move the learner toward meeting the learning target? How would this*	

	strategy ensure all students, with differentiated needs, could feel successful?) Whether the project was three dimensional or in Google slides, all groups seemed to feel successful with their product. The products reflected many of the students' specific strengths. **How does this strategy support meeting the "just-right challenge," or "building relationships," or "creating relevancy," or "fostering disciplinary literacy"?**	
Technological resources that will support student learning and move students toward the learning target.	***Technological Resource and application:*** **Students used Chromebooks for their research. Many used Google slides for their presentations.** **How: In what ways does this chosen resource support meeting the "just-right challenge," or "building relationships," or "creating relevancy," or "fostering disciplinary literacy"?**	*How will my students and I strategically use technology resources to enhance the learning experience (and support "meeting the just-right challenge," "building relationships," "creating relevancy," and/or "fostering disciplinary literacy")?*
Formative assessment will be a quick Check for Understanding in which students will demonstrate they are or are not on track.	***Formative Assessment*** **Formative Assessment tool/method:** **Learning indicators of success:** *(What evidence will show that the learner is moving toward mastery of the learning target?)* **The written explanation of the reason for the seasons was my formative assessment. Students were also assessed on whether the model supported their explanation.**	*What "indicators of success" will show that the students are gaining mastery?* *How will I use that evidence in a feedback loop?*

Reflection: (What are the *strengths in the lesson plan? What changes would I make in the lesson plan for next time*?) **Teacher Reflection: What was most effective about this lesson? What areas could be improved?** **Student Reflection: Reflect on your thinking, learning, and work today. What were you most proud of?**
Connection to Performance Goal: (*What did I do in this lesson that gives evidence or may be used as an artifact for my professional growth plan?)*
Student Feedback: (*What did students say about the lesson? Did they find it engaging, interesting, appropriately challenging? Did their feedback confirm my own perception of the the lesson?)*

Time Suggested	2-3 class periods of 45 minutres - 1 hour.
Materials Needed	Chromebooks, materials for three dimensional models
Co-teaching Opportunity	Could be taught with the special education teacher or the ESL teacher, who would provide scaffolds as needed.
Cross-Content Connections	Math (graphing), Literacy (writing explanatory text)

Orbiting model:
http://d3tt741pwxqwm0.cloudfront.net/WGBH/npls13/npls13_int_seasons/index.html

NASA Space Place:
http://spaceplace.nasa.gov/seasons/en/

Useful?
https://d43fweuh3sg51.cloudfront.net/media/assets/wgbh/ess05/ess05_doc_lpasunlight/ess05_doc_lpasunlight.pdf

KIDS GEO:
http://www.kidsgeo.com/geography-for-kids/0017B-reasons-for-the-four-seasons.php

Discovery Kids:
http://discoverykids.com/articles/what-causes-seasons/

Ted ED “Reason for the Seasons” Video (first 41 seconds of the video):
http://thekidshouldseethis.com/post/54997613241

Written Explanation
Essential Question- What is the reason for the seasons?
Claim
I claim that the reasons for the seasons is the tilt of the earth as it travels around the sun in an eliptical orbit.

Evidence
My evidence comes from observing a model made by scientists. The model demonstrates how the earth travels around the sun during one revolution (12 months).

*In June, the Northern Hemisphere is receiving more solar energy with more hours of light (our summer).
*In December, the Southern Hemisphere is receiving more solar energy with more hours of light (their summer).
During March and October, both hemispheres are receiving about the same amount of solar energy with equal hours of light and dark.

Reasoning
*The earth has has an imaginary line through it called an axis that points to the North Star.
*The earth travels around the sun in an eliptical orbit.
*It takes 365 days or 12 months for one revolution around the sun.
*During the revolution, the Northern and Southern Hemispheres receive different amounts of sunlight due to the tilt and eliptical orbit.